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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/620,523	07/20/2000	Bruce E. Novich	1596C5	2899
22852	7590	10/20/2005	EXAMINER	
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413			GRAY, JILL M	
			ART UNIT	PAPER NUMBER
			1774	

DATE MAILED: 10/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/620,523	NOVICH ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Jill M. Gray	1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 July 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-40 and 42-58 is/are pending in the application.
- 4a) Of the above claim(s) 4,6-11,21-39 and 48-58 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,5,12-20,40 and 42-47 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

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## **DETAILED ACTION**

### ***Response to Amendment***

The rejection of claims 1, 3, 5, 12-17, 19-20, 40, and 42-47 under 35 U.S.C. 102(a) as being anticipated by PCT Publication WO 99/44956 or PCT Publication WO 99/44958 or PCT Publication WO 99/44959 or PCT Publication WO 00/21899 or PCT Publication WO 00/21900 is withdrawn in view of applicants' arguments.

The rejection of claims 1, 3, 5, 12-20, 40, and 42-47 under 35 U.S.C. 103(a) as being unpatentable over Nagamine, 1-249333 in view of Russian Patent Publication 2072121 (Adolfovna) in view of PCT Publication WO 99/44956 is withdrawn in view of applicants' arguments.

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3, 5, 16-17, 40, 42, 45, and 46 are rejected under 35 U.S.C. 102(b) as being anticipated by Stengle, Jr. 4, 316, 930 (Stengle).

Stengle teaches a reinforced laminate comprising a woven fabric substrate having a coating thereon, said coating comprising a resin containing a filler material. In addition, Stengle teaches that the coated fabric can be mounted onto a backing material. See abstract, column 6, lines 43-46 and 61-64, and column 7, lines 4-5. The term "matrix material" is broad and would embrace the backing material of Stengle.

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Accordingly, Stengle teaches a reinforced laminate as claimed in present claims 1 and 17. As to the language of "adapted for an electronic support", the term "electronic support" is vague and it is the examiner's position that the composite of Stengle is "adapted" for an electronic support, particularly those in need of heat resistance.

Accordingly, Stengle teaches an electronic support as claimed in present claims 40 and 46. Regarding claims 3, 5, and 42, Stengle teaches that the filler can be graphite. See column 1, lines 38-42. As to claims 16 and 45, Stengle teaches that the resin coating is silicone.

Therefore, the teachings of Stengle anticipate the invention as claimed in present claims 1, 3, 5, 16-17, 40, 42, and 45-46.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 13, 18 and 47 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Stengle, Jr., 4,316,930, as applied above to claims 1, 3, 5, 16-17, 40, 42, and 45-46.

Stengle is as applied above but is silent as to the LOI and air permeability, per claims 18 and 47. In this regard, it is the examiner's position that the reinforced laminate of Stengle is the same as or substantially similar to that contemplated by applicants. Thus, the examiner has reason to believe that all properties would be the

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same as well in the absence of factual evidence to the contrary. Applicants are invited to provide said evidence. As to claim 13, it is the examiner's position that since the strand of claim 1 is not limited to glass fibers, nor does said strand require glass fibers, the Moh's hardness of the particles of Stengle necessarily meet this limitation. In the alternative, it would have been obvious to use particles having a Moh's hardness of the particles not exceeding that of the glass fibers to minimize breakage of said fibers.

5. Claims 1, 3, 5, 12-20, 40, and 42-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagamine, 1-249333 in view of Russian Patent Publication 2072121 (Adolfovna), for reasons of record.

Nagamine teaches a laminate adapted for an electronic support and an electronic support wherein the laminate comprises a glass cloth impregnated with a resin (page 1). In addition, Nagamine teaches that the glass cloth is formed from sized filaments that have been formed into yarns and subsequently woven into cloths wherein the glass cloth still has the sizing agent adhered thereto. Nagamine teaches that in cases where the sizing agent causes a problem in the adhesion with the resin, the glass cloth can be degreased. See page 3. Moreover, Nagamine teaches that the sizing agent used for the glass yarns include a recently developed non-desizing sizing agent that does not require degreasing or surface treatment and thereby eliminates degreasing and improving productivity and production yield. See page 10. Nagamine does not teach the incorporation of particles. Adolfovna teaches substrates for circuit boards comprising fabric sheets impregnated with a polymer binder comprising boron nitride powder, as required by claims 3, 5, 17, 41, 42, 43, and 46. In addition, Adolfovna

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teaches that the binder can be epoxy binder and that the powder has a particle size of 0.5-20m, as required by claim 15 and 44. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the impregnant composition of Nagamine by including particulate material such as boron nitride powder as taught by Adolfovna with the reasonable expectation of obtaining a prepeg suitable for electronic supports and having good dielectric properties and heat resistance. Regarding the thermal conductivity and Moh's hardness of claims 12-13, Adolfovna teaches the same type of particles contemplated by applicants, accordingly, the examiner has reason to believe that the properties of said particles are the same as well. As to claims 19-20, Nagamine teaches the incorporation of resin reactive diluents in his coating composition. See page 17. Regarding claims 16 and 45, it would have been an obvious variant to include an additional lubricious material to minimize abrasion during processing. The substrates of Adolfovna have increased heat resistance and improved thermophysical and dielectric properties, which would have provided motivation to the skilled artisan to modify the laminates of Nagamine by incorporating a boron nitride powder. It is noted that Adolfovna teaches a basalt fabric substrate whereas Nagamine teaches a glass cloth. Nevertheless, Nagamine and Adolfovna are each drawn to the same endeavor of forming prepegs to be used in the formation of circuit boards, and each teach inorganic fibrous fabrics impregnated with epoxy in the formation of said prepegs.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to produce a laminate and electronic support comprising a

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matrix material and a fabric comprising at least one strand comprising a plurality of fibers. While the examples set forth in Nagamine utilize a glass cloth that has been degreased, the prior art reference is not limited solely to that which is taught in its' preferred embodiments, rather, all that the prior art reference would have reasonably imparted to one of ordinary skill in the art at the time the invention was made. In the instant case, the teachings of Nagamine would have provided direction to the skilled artisan to use as the fabric, a fabric that is sized with a sizing agent that does not require degreasing or more specifically, a non-degreased fabric, with the reasonable expectation of improving economic aspects of the production process and improving production yield. Regarding claims 18 and, it is the examiner's position that where the general conditions of a claim are discovered in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.

6. Claims 1, 3, 5, 17, 40, 42, 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagamine, 1-249333 as applied above in view of Japanese Patent Publication 4-307787, (Iketani).

Nagamine is as set forth above but does not teach the inclusion of particles. Iketani teaches a method of producing printed circuit substrates comprising impregnating a glass cloth with a varnish containing an inorganic filler such as oxides, per claims 3 and 5. See [0006] and [0011]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Nagamine by including particulate material in the impregnate with the reasonable expectation of enhancing the dielectric properties of the resultant laminate.

***Response to Arguments***

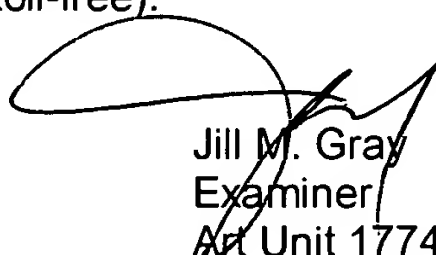
7. Applicant's arguments with respect to claims 1, 3, 5, 12-20, 40, and 42-47 have been considered but are moot in view of the new ground(s) of rejection.

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jill M. Gray whose telephone number is 571-272-1524. The examiner can normally be reached on M-Th and alternate Fridays 10:30-7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jill M. Gray  
Examiner  
Art Unit 1774

jmg